

sessile : filaments united about to the middle.—Fl. 379 ; Torr. & Gray, Fl. i. 168.

E. tubulosa Pursh (*Hypericum tubulosum* Walter) has not been identified, but is probably this species, from which it differs only in its "tubular corolla," concerning which there must have been some mistake ; see Torr. & Gray, Fl. i. 168.

Hypericum petiolatum Walter, Fl. Car. 191.

H. axillare Michx. Fl. ii. 81.

H. paludosum Choisy. in DC. Prodr. i. 546.

From Virginia to Florida, Louisiana, and Arkansas.

A Trip to Willoughby Lake, Vt.

WALTER DEANE.

The region about Willoughby Lake, Vt., is so rich in interesting flowering plants and ferns that a short account of my visit there, during the latter half of July, 1885, may be of interest to botanists.

I arrived there with my wife and Judge J. R. Churchill, of Dorchester, Mass., an enthusiastic botanist, on the evening of July 18th. A pleasant ride of about eight hours in the cars from Boston, on the Boston & Montreal Air Line, brought us to West Burke, on the Passumpsic railroad, where we left the cars and took stage for the Willoughby Lake House. The ride of six miles, through a hilly country, over a rough road, was quite refreshing, for the air was clear and bracing, and, during our stay of two weeks, we were never oppressed by the heat.

Willoughby Lake lies in the northern part of Vermont, in the township of Westmore, between Willoughby mountain on the east, and Mt. Hor on the west.

The lake, which runs north and south, is six miles long and from half a mile to a mile and a half broad. Its surface is about 1200 feet above sea level. It empties into Lake Memphramagog through Willoughby river, and from there finds its way into the St. Lawrence river. The Willoughby Lake House, at which we stayed, stands at the head of the lake and commands a magnificent view, especially when the sunset clothes the towering cliffs on Willoughby Mt. with a rosy hue. The country is well wooded, even to the summit of the mountains, with the usual trees and shrubs that prevail in this section. Prominent among them were *Tilia Americana*, *Acer saccharinum*, *Acer rubrum*, *Acer Pennsylvanicum*, *Acer spicatum*, *Fraxinus Americana*, *Frax-*

inus sambucifolia, *Ulmus Americana*, *Fagus ferruginea*, *Betula papyracea*, *Betula lutea*, *Populus tremuloides*, *Populus grandidentata*, *Thuja occidentalis*, *Picea alba*, *Picea nigra*, *Tsuga Canadensis*, *Abies balsamea*, and *Larix Americana*.

Alnus viridis was very abundant, while, in the bogs, was found *Ledum latifolium*, and *Rhamnus alnifolius*, the latter with its black berries, bearing a close resemblance to the buckthorn, *Rhamnus catharticus*, of our hedges.

One of the first expeditions was to the ledges on the steep sides of Willoughby Mt., whither I had often wandered in fancy, as I read in the Manual of "*Arabis petræa*, Willoughby Mt., Vermont, H. Mann," "*Primula Mistassinica*, Willoughby Mt.," and I longed to see and collect the plants for myself.

The cliffs of Willoughby Mt. rise sheer and straight for many hundred feet above the lake and their base is only reached by a hard scramble of about an hour's duration, up a very steep ascent over boulders and fallen trees and, in places, through a dense undergrowth. This slope is heavily wooded from the water's edge almost to the very base of the cliffs. Land slides are not infrequent, and it is easier to climb up their rocky beds over the loose rocks and crumbling stones than to push through the woods. In the rich soil at the base of the mountain we found *Allium tricoccum*, in full flower, in abundance, and *Monotropa Hypopitys* was frequently met with, pushing its creamy-white flowers and stems through the rich leaf-mould under the trees. Pushing our way up one of the "runs", as the bare paths, left by the slides, are called, we passed abundance of *Asprella Hystrix*, *Elymus Canadensis*, and *Muhlenbergia Mexicana*, growing among the rocks, and, on nearing the top of the slope, we found *Rosa blanda* covering the rocks in great profusion, interspersed with *Astragalus alpinus*, in full fruit. Arrived at the foot of the ledges, a new field was opened out before us. Above us towered the bold, bare, threatening cliffs, so steep that, should a stray boulder loosened from above come tumbling down (an event which often happens), I felt that by pressing against the rock, I could avoid it. More than once that morning we heard the ominous falling of rocks from the cliffs across the lake. Small streams from above, trickling down the ledges, keep them wet. In the chinks and crevices within our reach and too often, to our disappointment, far beyond, grows a rich and attractive flora.

Scattered here and there on the dripping ledges were bright yellow patches of the beautiful yellow mountain saxifrage, *Saxifraga aizoides*, while its near relative, the little *Saxifraga oppositifolia* modestly clothed the rocks with its small patches of

green. Its open pods were all that was left of its fruit. We found this plant much more abundant on the cliffs of Mt. Hor. The pretty little *Primula Mistassinica* was growing everywhere in the wet chinks of the rocks. The time to gather this plant in flower is early in June, but we secured as many specimens in fine fruit as we cared to take away. The withered corolla was still covering the well-developed capsule, which, with the scape, was bright yellow, contrasting strangely with the bright, green leaves.

The most interesting of the twenty-seven species and varieties of the genus *Carex* that we found and collected during our visit, was *Carex scirpoidea*, which grew here in great profusion on the rocky slope, as well as on the cliffs of Mt. Hor. Both sterile and fertile spikes were equally abundant. Though the sedge itself is not very striking in appearance, yet, when collected properly, with its root-stock and base leaves, it makes a handsome specimen. It is rather difficult to get the plant up by the roots, and botanists are apt to leave them behind. *Carex Oederi* was also very abundant, varying in height from three to eight inches. The only other cyperaceous plant that we found here was *Rhynchospora capillacea*. *Erigeron hyssopifolius* and *Calamagrostis stricta* were interesting features of this locality.

I must not forget the *Hedysarum boreale*, with its pretty purple flowers and jointed pods. It seemed to be well aware of its great attraction to botanists, for most of it was growing defiantly far above our reach. The *Arabis petræa*, which we had particularly desired to find, was abundant everywhere on the same dry slopes where Horace Mann found it in 1862. It was past flower, however, and its long slender pods had burst and were freely scattering their seeds. I collected several specimens of *Potentilla fruticosa*, which, on these bold exposures, we rarely found more than a foot high. But the day, at length, was drawing to a close, and with our presses and boxes well filled we reluctantly descended the mountain and returned to the hotel.

Our trip, the next day, was to the cliffs on Mt. Hor, on the western side of the lake. It was here that I realized, for the first time, a fact which I had often heard before, that the Willoughby Lake region was famous for its ferns. Here they were in the deep woods, in the wildest profusion, even the common species wearing a most attractive appearance, from their freshness and fine development. *Aspidium aculeatum*, var. *Braunii*, grew abundantly in the deep shade below the cliff, with its circlet of gracefully curving fronds, which were sometimes three feet long. We passed through beds of *Adiantum pedatum*, and amongst the moss-grown boulders near the water were magnificent specimens

of *Phegopteris Dryopteris*, *P. polypodioides*, and *Aspidium spinulosum*, var. *intermedium*, while everywhere was the common *Polypodium vulgare*. Our most interesting finds, however, among the ferns, were growing in the wet crevices of the cliffs, carefully hidden by the overhanging rock and sheltered by the trees. These were *Pellaea gracilis* and *Woodsia glabella*. We found both of these ferns afterwards in other localities, but nowhere in such abundance as here. The little *Pellaea* had hidden its delicate rootstocks so deep down between the narrow chinks that it was difficult to procure full specimens. With care, however, we succeeded in procuring all we wanted. We found essentially the same flora on these cliffs as on the Willoughby ones, though the various species seemed to differ in relative abundance. We added to our collection here *Draba arabisans*, *Impatiens pallida*, *Trisetum subspicatum*, var. *molle*, and *Microstylis monophyllos*. *M. ophioglossoides* we found afterwards in abundance on the dry sunny hillside near the hotel. This latter plant I have often found in Shelburne, N. H., and always in similar locations. The "ostrich-fern," *Onoclea Struthiopteris*, was growing rank by a running brook, while the little *Equisetum scirpoides* was in full fruit, covering the wet turf by the edge of the water. We reached home, this day, in time for dinner, but found plenty to do during the rest of the afternoon in laying away our plants.

One day we made an expedition over Willoughby Mt., and we were well rewarded with magnificent views and full presses. Here again the ferns were everywhere. It is not so much of their variety that I speak, though we counted thirty different kinds, as of their omnipresence. They greeted the eye at every step from the coarse *Pteris aquilina* by the roadside, to the graceful *Cystopteris bulbifera* in the damp woods. I was struck with the strong, sweet fragrance of the latter. I have collected *Aspidium fragrans* in abundance in Shelburne and Gorham, N. H., but its fragrance did not compare with the delicious odor of the "bladder fern." *Aspidium Goldianum* was abundant near the foot and on the summit of the mountain, but it was difficult to find perfect fronds owing, as it appeared, to the attacks of some insect. Half way up the mountain, which is about 2,500 ft. above the level of the lake, is a bold rock projecting over the cliff beyond the trees, whence a fine view is obtained. It is called "pulpit rock" and is an interesting botanical locality, for here we found plenty of *Draba incana*, and *Clematis verticillaris* in fruit, with *Solidago bicolor*, var. *concolor*, just coming into flower. The trees on the summit of the mountain do not differ from those below, though they are somewhat stunted. We took one bunch

in the warm sunshine, near abundance of *Carex canescens*, var. *alpicola*, which was growing in dense tufts. I was surprised to find *Muhlenbergia glomerata*, which is credited in the Manual to bogs, growing here among the dry rocks. Farther down in the woods we found *Viola pubescens*, with its variety *eriocarpa*, and *V. Canadensis*, in various stages of fruit and flower. After descending the mountain we walked back through the woods along the shore of the lake. *Fragaria vesca* and *F. Virginiana*, were both abundant along the roadside, and we had a good opportunity to observe the differences between the two species. The thin, light green leaves and small fruit with superficial achenia of *Fragaria vesca* make it easily distinguishable from the other species, with its much darker leaves and imbedded achenia. I had not realized that the fruit of the two species presented such a different appearance. The fruit of *Fragaria vesca* is very insipid to the taste, as compared with *F. Virginiana*.

A small muddy pond and a bog behind the hotel well repaid more than one visit. *Naias flexilis* and *Chara intermedia* cover the bottom of the pond, while its margin is lined with many interesting plants, among others, *Lobelia Kalmii*, *Habenaria obtusata* and *H. hyperborea*.

Our two weeks sped quickly by and we were obliged to leave this enchanting spot just as the asters, solidagos and other composites were coming into bloom. My object in this short sketch has been, not to enumerate all, or nearly all, of the interesting plants that we found in this locality, or to tell anything new, but to show what a rich botanical field lies within easy reach of all who have the leisure and the desire to visit Willoughby Lake.

BRIEFER ARTICLES.

✓ **Notes on *Eatonia*.**—Having recently made some investigation into the genus *Eatonia*, I wish to call the attention of botanists to such forms of that genus as they may meet with. The indications are that there are several new species or very marked varieties, of which I think the two following may be well separated as species:

1. **EATONIA DUDLEYI.**—Culms 2 to 2½ feet high, very slender: cauline leaves only 1 or 2 inches long, abruptly acute, spreading; the radical ones 3 to 6 inches long: panicle slender, nearly linear, 3 to 6 inches long, the branches few and mostly appressed: upper empty glume obovate, obtuse, broadly scarious on the margins, smoothish; the lower glume broader than in *E. Pennsylvanica*, and nearly as long as the flower next above it; flowering glumes linear-oblong, obtuse or abruptly acute, the second one hispidulate. Grows in open